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Abstract of the Disclosure

An memory module including parallel data compression and decompression engines for improved performance. The memory module includes MemoryF/X Technology. To improve latency and reduce performance degradations normally associated with compression and decompression techniques, the MemoryF/X Technology encompasses multiple novel techniques such as: 1) parallel lossless compression/decompression; 2) selectable compression modes such as lossless, lossy or no compression; 3) priority compression mode; 4) data cache techniques; 5) variable compression block sizes; 6) compression reordering; and 7) unique address translation, attribute, and address caches. The parallel compression and decompression algorithm allows high-speed parallel compression and high-speed parallel decompression operation. The memory module - integrated data compression and decompression capabilities remove system bottlenecks and increase performance. This allows lower cost systems due to smaller data storage, reduced bandwidth requirements, reduced power and noise.

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